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**W-04254A-08-03b**

By Robin G. Weesner, R.G.

04/06/2010

# WELLS AND WATER USE NEAR MONTEZUMA WELL

**MONUMENT** Arizona Corporation Commission

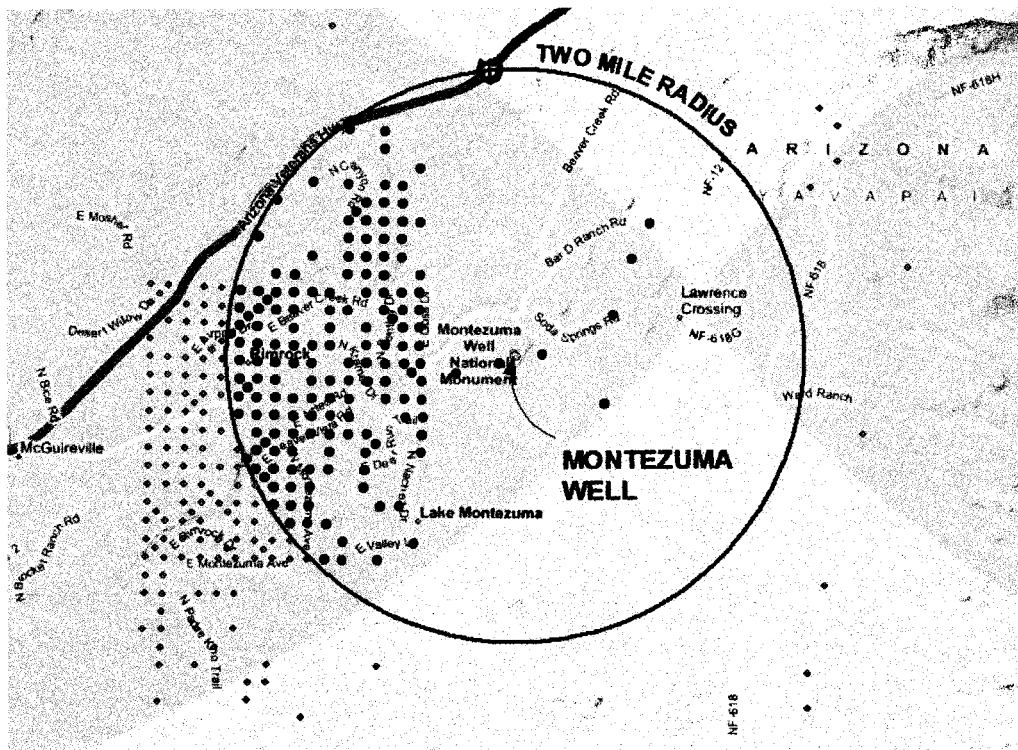
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## How many wells and where?

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Arizona Department of Water Resources (ADWR) maintains a list of registered wells for the State of Arizona. The wells are only crudely located in their database (only within the nearest 10 acres). Using the ADWR data and projecting a 2 mile radius from the Montezuma Well itself yields 406 wells—located principally due west of the Well.



## What Types of Wells?

ADWR classifies wells based on potential pumping rate and use. Exempt wells pump less than 35 gallons/minute and irrigate 2 or less acres. Exempt wells pump more and can be used for irrigation of larger areas or to serve water company customers. Generally, the larger pumping wells would be of more concern based on the ability to have a greater impact on groundwater conditions in the area. In the 2 mile radius, there are 31 non-exempt wells—8 belong to water companies [Arizona Water (5) and Montezuma Rimrock Water Company (3)]. The rest belong to the Beaver Creek School, ADOT, and private owners.

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BASIC  
GROUNDWATER  
INFORMATION SERIES

By Robin G. Weesner, R.G.

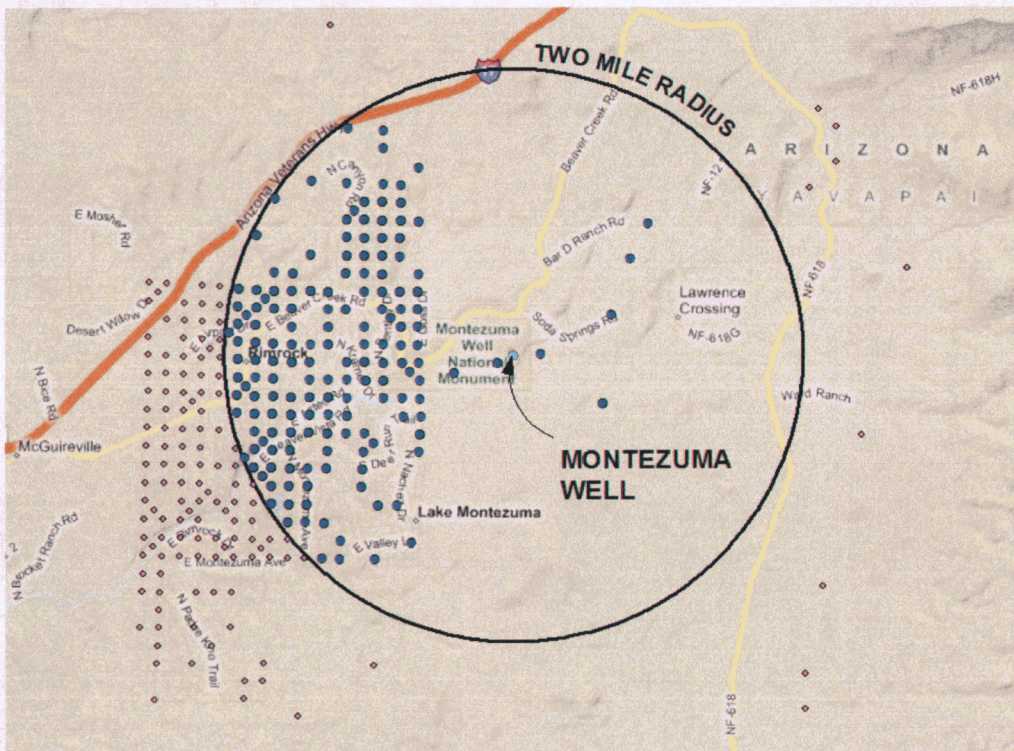
04/06/2010

WELLS AND WATER USE NEAR  
MONTEZUMA WELL NAT'L  
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ORIGINAL

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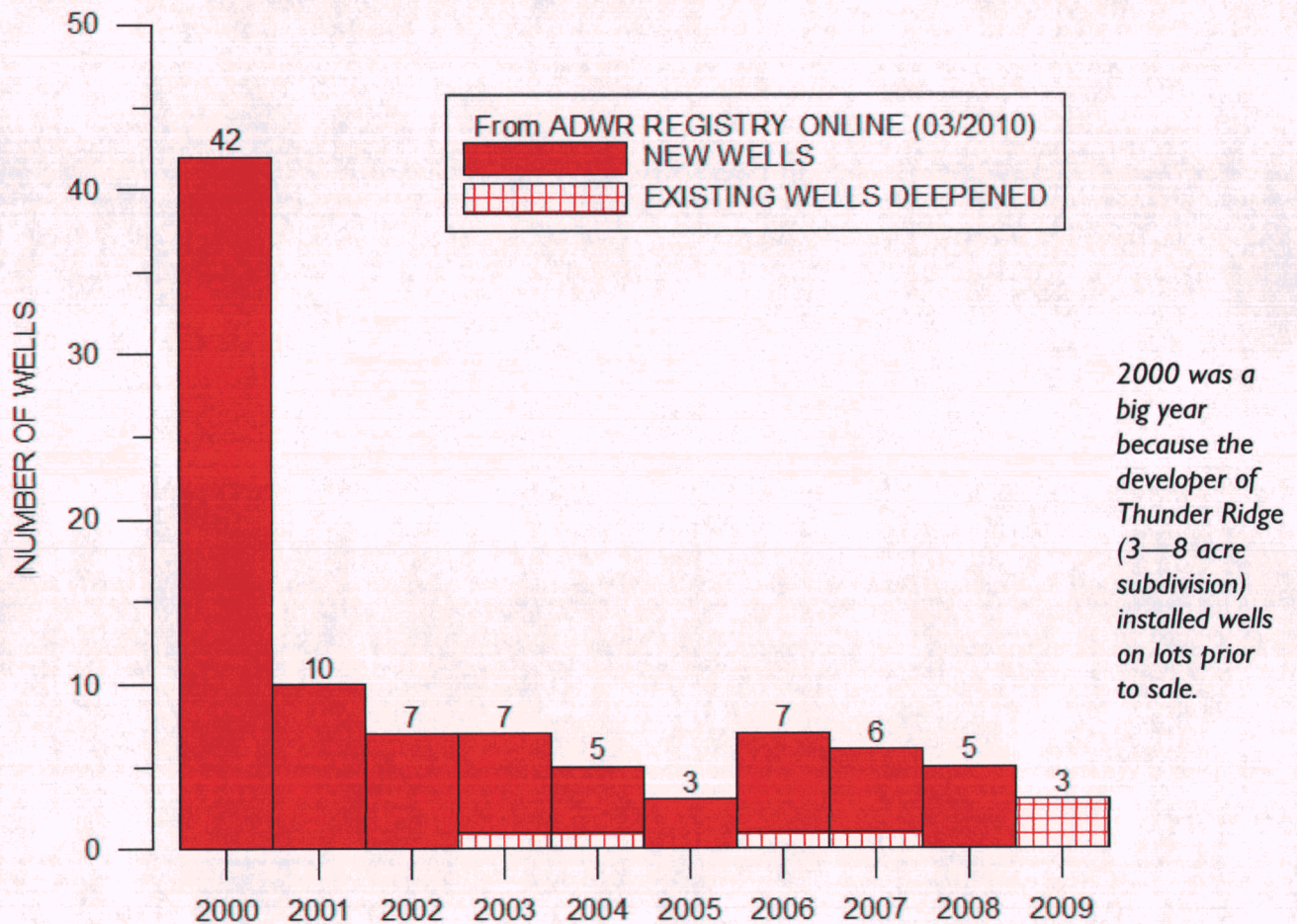
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## The past 10 years—a history of well activity

Looking back over the past 10 years, it is clear that well installation rates have varied dramatically within our 2 mile radius. Well activity is related to real estate activity and the economy. This graph shows a history.

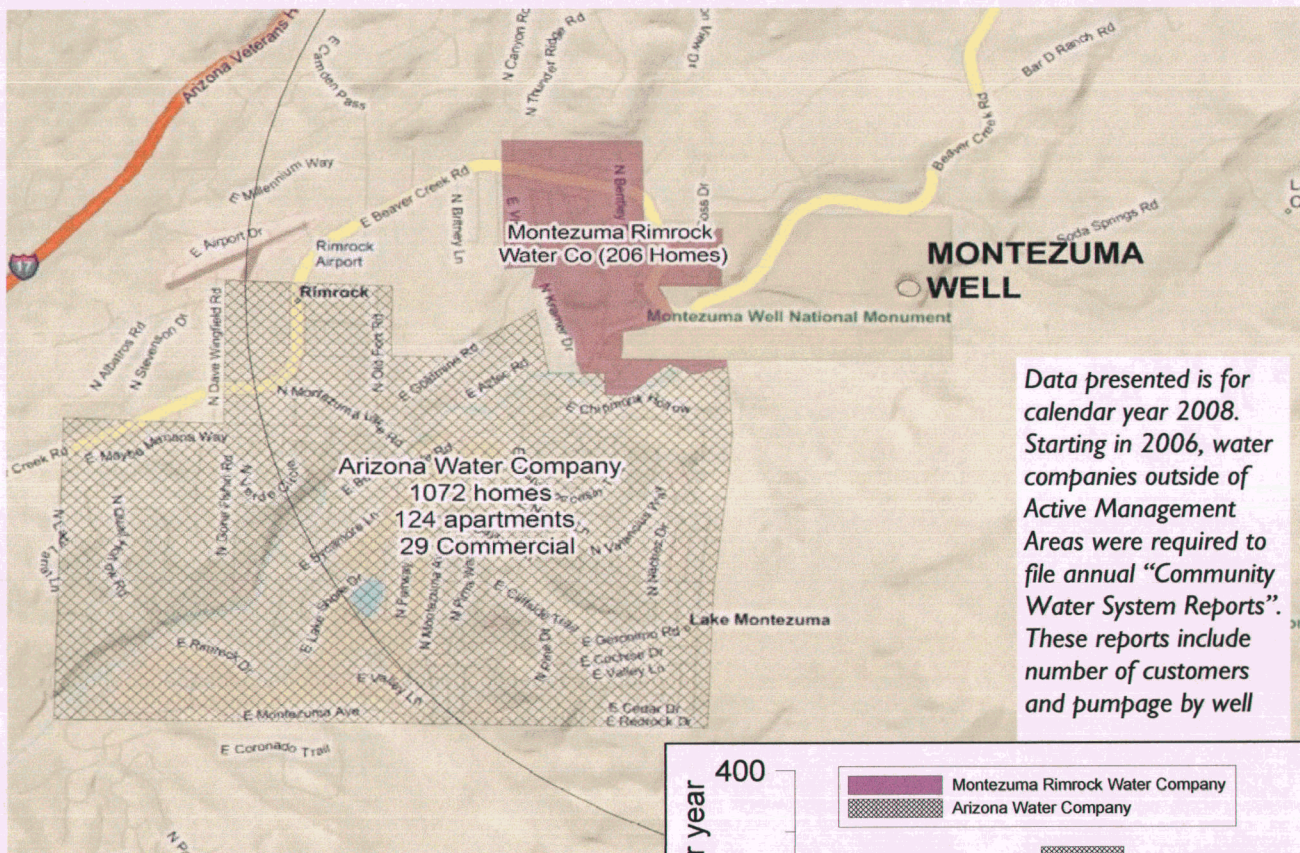


The cost of drilling and installing a pump in a new well is substantial (thousands of dollars). Sometimes deepening a well can also lead to significant costs. Given the current economic conditions, it is inconceivable that significant numbers of new wells will be drilled or deepened in the near term future. There will be at least one or two years (or more) to formulate any policies/strategies for the area for the protection of Montezuma Well.

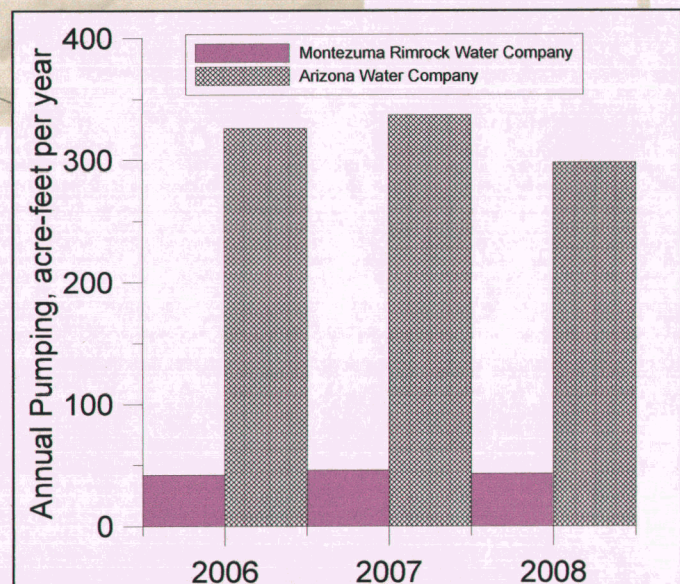


## The Water Companies—significant users of groundwater

There are no large scale users of water for irrigated agriculture in the 2 mile radius. The large majority of water users are for domestic use. Assuming that the roughly 375 wells are actively used for water supply for 375 homes, that leaves the rest of population to be served by the two major water companies in the area: Arizona Water Company (AWC) and Montezuma Rimrock Water Company (MRWC). By far, the most groundwater pumped in the area is by these two water companies.



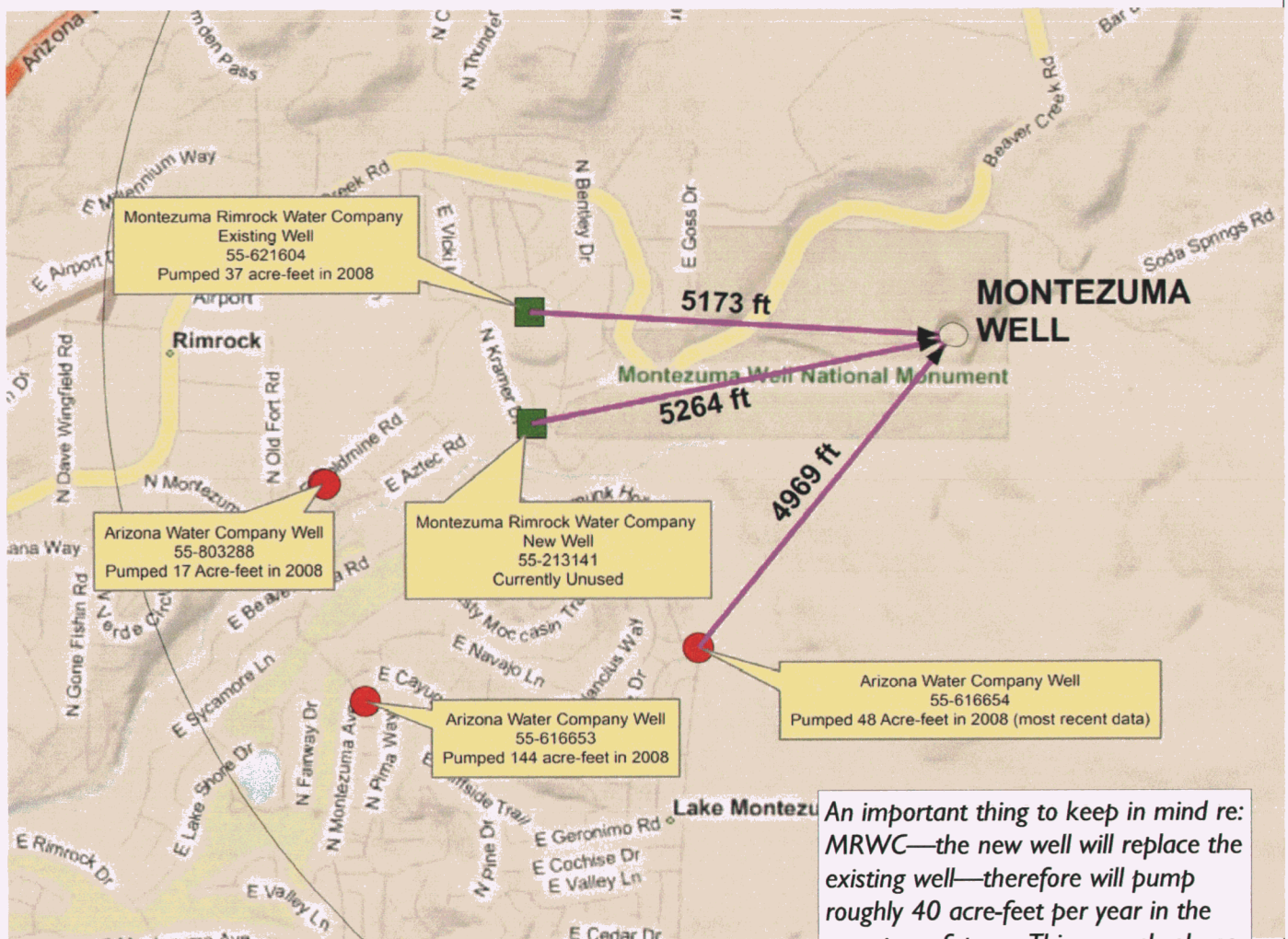
There is very consistent water usage by the customers of the two water companies—there are more than 5 times as many customers of AWC than MRWC - and the difference in water use is at about the same proportion.





## Water Company Wells—Distribution and Pumpage

When wells are drilled, the owners provide an estimate of how much it may pump. This can be based on testing or just a “guestimate” by the owner. In the case of water companies, they may state the “maximum” pumpage of a well on paperwork, but in reality the actual pumpage rate is based on aquifer productivity, customer demand, water system design, and on the condition of the production wells at any point in time. Below is a map of the closest water company wells to the Montezuma Well along with pumpage figures from 2008:



An important thing to keep in mind re: MRWC—the new well will replace the existing well—therefore will pump roughly 40 acre-feet per year in the near term future. This annual volume is equivalent to a continuous pumping rate of 26 gallons a minute—a far cry from the 750 gallons a minute rate being reported for this well



## Getting a handle on New Wells before they are Drilled

The recent events surrounding the MRWC replacement well has underscored the desire of the County, the U.S. Park Service, and local individuals/groups to have a more timely notification of new groundwater wells (especially new water company wells).

The primary agency that regulates installation of new wells is Arizona Department of Water Resources (ADWR). This agency has an established paperwork submittal procedure that may not lend itself easily to early notification to interested parties. Earlier this year, ADWR has reduced its workforce by more than 50 staff positions due to state budgetary problems. It may be problematical to attempt to request that ADWR provide any special notifications to interested parties. Additionally, the on-line information at the ADWR web site is currently not sufficient to identify proposed new wells.

Yavapai County is involved in the approval process for all wells that are drilled on property sizes of 5 acres or less. The County is responsible for ensuring that all wells are drilled 100 feet or more away from septic systems.

In the case of wells in the Lake Montezuma/Rimrock area, the Yavapai Development Services Department reviews a site plan (example from 2009 on right) and can perform an inspection. This plan check is performed for all well deepening and for new wells that are drilled. If such a step were implemented and if the County or others wished to collect further information—the County would be required to create a procedure to hold up approval—because typically the approval from Development Services is completed within a couple days from date of receipt. In the case of the example to the right, request to drill the well was submitted 8/30/09 and approval to drill (after County approval) was given on 9/4/09.

A second (and more efficient method for the short term) is to request that both water companies provide a designated contact with information regarding any major changes to their water systems (drilling new wells, well deepening or shifting of pumpage locations, etc.).

Notice of Intent to Drill, Deepen, Replace or Modify a Well

CHECK ONE: ☐ FILING MANUALLY ☒ FILING ELECTRONICALLY\* \*ONLINE E-MAIL ADDRESS: \_\_\_\_\_ COUNTY APPROVAL CODE: \_\_\_\_\_

If applicant is filing this NOI electronically via the ADWR website and County approval is required, please indicate approval by providing a County Approval Code.

NAME OF WELL OWNER: Beaver Creek Baptist Church COUNTY ASSESSOR'S PARCEL ID NUMBER: 405 14 0116B

BOOK: 405 MAP: 14 PARCEL: 0116B

► If this well will be a domestic well on 5 acres or less, please draw the following: (1) the boundaries of your property; (2) the proposed well location; (3) the locations of all septic tank systems and sewer systems on the property or within 100 feet of the well location, even if on neighboring properties; and (4) any permanent structures on the property that may aid in locating the well. If the parcel is vacant land or lacks a septic tank or sewer system, please indicate this.

► Indicate the distance between the proposed well location and any septic tank system or sewer system.

COUNTY OR LOCAL AUTHORITY NAME AND TITLE: \_\_\_\_\_ OFFICIAL COUNTY OR LOCAL SEAL OR STAMP: \_\_\_\_\_

COUNTY OR LOCAL AUTHORITY SIGNATURE: \_\_\_\_\_

TELEPHONE NUMBER: \_\_\_\_\_ DATE: \_\_\_\_\_

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Robin G. Weesner, R.G. is a principal in a small consulting firm Southwest Water and Mineral Resources, L.L.C (SWMR). She has 29 years of working experience in surface water hydrology and hydrogeology—27 of those years working in the State of Arizona and throughout the western U.S. She is a registered geologist in the States of Arizona and California.

She has worked for Arizona Department of Water Resources in the Assured/Adequate Water Supply Section and has worked for nationally recognized environmental consulting firms ERM-West and Hargis + Associates, Inc. Areas of specialty include water supply studies, groundwater contamination assessment and remediation, geographic information system development and database creation and maintenance.

Gary D. Weesner, C.P.G is also a principal of SWMR. He has 30 years of working experience in surface water hydrology and hydrogeology. He has worked for the U.S. Geological Survey, Harza Engineering Company and Franzoy-Corey Engineers prior to starting SWMR. He specializes in work relating to groundwater production wells for large irrigation districts and for real estate developments.

They reside in the Rimrock/Lake Montezuma area.

## **Why Prepare White Papers?**

Recent events surrounding replacement of a MRWC well have occurred that has highlighted the need for factual information regarding groundwater use and groundwater conditions in the Rimrock/Lake Montezuma Area. This is the first of a series of white papers to be prepared in order to fill the “information void” and to allow decision-making to be based on facts, rather than speculation and emotion. These white papers are being produced pro-bono as a public service to the community and are not copyrighted. As such, they can be distributed without the prior permission of the author. However, the author does request proper citation be provided if the information herein is used. All of the data included in this paper was collected from publically available as of the publication date.